



POTGB2003/004046



23 MAR 2005

INVESTOR IN PEOPLE

The Patent Office
Concept House
Cardiff Road
Newport
South Wales
NP10 8QQ

REC'D 20 OCT 2003

WIPO PCT

PRIORITY DOCUMENT

SUBMITTED OR TRANSMITTED IN
COMPLIANCE WITH RULE 17.1(a) OR (b)

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

BEST AVAILABLE COPY

CERTIFIED COPY OF PRIORITY DOCUMENT

Signed

Dated 9 October 2003

24 SEP 2002

RECEIVED BY HAND

The Patent Office

25SEP02 E750724-1 000027
P01 0.00-0222185.1

1/77

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office
Cardiff Road
Newport
Gwent NP9 1RH

1. Your reference	444.79307/000		
2. Patent application number <i>(The Patent Office will fill in this part)</i>	0222185.1 24 SEP 2002		
3. Full name, address and postcode of the or of each applicant <i>(underline all surnames)</i>	Forinnova AS Thormøhlensgate 55 N-5008 Bergen Norway		
08362022-01 Patents ADP number <i>(if you know it)</i>			
If the applicant is a corporate body, give country/state of incorporation	Norway		
4. Title of the invention	USE		
5. Name of your agent <i>(if you have one)</i>	Frank B. Dehn & Co.		
"Address for service" in the United Kingdom to which all correspondence should be sent <i>(including the postcode)</i>	179 Queen Victoria Street London EC4V 4EL		
Patents ADP number <i>(if you know it)</i>	166001		
6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and <i>(if you know it)</i> the or each application number	Country	Priority application number <i>(if you know it)</i>	Date of filing <i>(day / month / year)</i>
7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application	Number of earlier application		Date of filing <i>(day / month / year)</i>
8. Is a statement of inventorship and of right to grant of a patent required in support of this request? <i>(Answer 'Yes' if:</i>	Yes		
a) any applicant named in part 3 is not an inventor, or b) there is an inventor who is not named as an applicant, or c) any named applicant is a corporate body. <i>See note (d))</i>			

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form 0

Description	4 ✓
Claim(s)	1 ✓
Abstract	-
Drawing(s)	-

10. If you are also filing any of the following, state how many against each item.

Priority documents -

Translations of priority documents -

Statement of inventorship and right to grant of a patent (Patents Form 7/77) -

Request for preliminary examination and search (Patents Form 9/77) -

Request for substantive examination (Patents Form 10/77) -

Any other documents (please specify) -

11. I/We request the grant of a patent on the basis of this application.

Signature Date 24th September 2002
Frank B Dehn & Co

12. Name and daytime telephone number of person to contact in the United Kingdom

Julian Cockbain
020 7206 0600

Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

- a) If you need help to fill in this form or you have any questions, please contact the Patent Office on 0645 500505.
- b) Write your answers in capital letters using black ink or you may type them.
- c) If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s) of the form. Any continuation sheet should be attached to this form.
- d) If you have answered 'Yes', Patents Form 7/77 will need to be filed.
- e) Once you have filled in the form you must remember to sign and date it.
- f) For details of the fee and ways to pay please contact the Patent Office.

79307.618

Use

5 The present invention relates to improvements in
and relating to cooked food, in particular vegetables
which are fried, grilled or baked.

10 In a publication by the Swedish National Food
Administration (see www.slv.se/engdefault.asp) it was
reported that many cooked foods, in particular fried,
grilled or baked foods, had surprisingly been found to
contain high levels of the toxic contaminant acrylamide.
No suggestion was made as to how the acrylamide content
of such foods could be reduced.

15 We have now surprisingly found that the acrylamide
content of cooked foods can be reduced by treatment of
the food prior to cooking with lactic acid generating
microorganisms and/or with acid.

20 Thus viewed from one aspect the invention provides
the use of a lactic acid producing microorganism for the
treatment of a food material to reduce acrylamide
production in subsequent cooking thereof.

25 Lactic acid producing microorganisms are well known
and examples include lactic acid bacteria such as
Bifidobacterium sp., *Brevibacterium* sp., *Lactobacillus*
sp., *Lactococcus* sp., *Leuconostoc* sp., *Micrococcus* sp.,
Oenococcus sp., *Pediococcus* sp., and *Streptococcus* sp.
Lactobacilli are especially preferred for use according
to the invention, in particular *Lactobacillus plantarum*
strains NCDO 1752 and NCDO 1193 (available from the
30 National Collection of Food Bacteria).

35 The treatment with a lactic acid producing
microorganism according to the invention preferably
involves incubation in an aqueous medium for up to 7
days, e.g. 30 minutes to 24 hours, especially 1 to 6
hours.

Viewed from a further aspect the invention provides
the use of a physiologically acceptable acid for the

treatment of a food material to reduce acrylamide production in subsequent cooking thereof.

The physiologically tolerable acid used according to the invention may be any acid acceptable for use in foodstuffs, e.g. organic acids, such as citric, malic, acetic, maleic, tartaric, succinic and lactic acids or inorganic acids such as hydrochloric, sulphuric and phosphoric acids and sulphur dioxide. The use of citric and hydrochloric acids is especially preferred. The acid is preferably used in a quantity and strength sufficient to reduce the surface pH of the food material treated to 1 to 5.5, preferably 3 to 5, especially about 4. Following acid treatment, the food material is preferably stored for up to 7 days (e.g. 30 minutes to 24 hours, especially 1 to 6 hours before cooking or freezing.

Following treatment with the acid and/or the lactic acid producing microorganism, the food material may be cooked using cooking techniques that expose the material to temperatures above 150°C, e.g. by baking, grilling or frying.

Before such high temperature cooking, it is desirable to rinse the treated food material with water.

The cooking may be one stage of a multi stage (e.g. two stage) cooking procedure. Thus the technique of the invention is especially applicable to food materials which are treated according to the invention, partially cooked, transported and/or stored, then cooked again.

The food material treated according to the invention may be any carbohydrate-containing food material but especially preferably is a plant or plant-derived material, e.g. a vegetable or cereal, in particular a root vegetable or a tuber (e.g. potato). Especially preferably the food material is potato, yam, onion, carrot, swede, turnip or parsnip. Such food materials are preferably processed (e.g. peeled, diced, sliced, chipped or chopped) prior to treatment according

to the invention.

The invention is especially applicable for the production of french-fried potatoes, in particular so-called oven-ready french-fried potatoes which are provided to the consumer in part-cooked form for baking prior to serving, as well as to the production of chopped ready-to-fry potatoes (e.g. of the type produced for deep frying in restaurants).

Thus viewed from a further aspect the invention provides a process for the preparation of ready to cook (e.g. oven-ready or ready to fry) french fried potatoes which process comprises chopping potatoes, fermenting the chopped potatoes with a lactic acid producing microorganism, frying the fermented chopped potatoes, and optionally loading the fried fermented chopped potatoes in a container, and optionally sealing the container.

Viewed from a still further aspect the invention provides a process for the preparation of ready to cook (e.g. oven-ready or ready to fry) french fried potatoes which process comprises chopping potatoes, treating the chopped potatoes with a physiologically acceptable acid, frying the acid treated potatoes, and optionally loading the fried potatoes into a container, and optionally sealing the container.

The container used in these processes will typically be a plastic bag, paper carton or bag or other container conventionally used for storage and transport of ready to cook french fries.

Viewed from a still further aspect the invention thus also provides a container containing ready to cook (e.g. oven-ready or ready to fry) french fried potatoes produced by frying chopped potatoes pre treated with a lactic acid producing microorganism and/or with a physiologically acceptable acid.

The potatoes treated according to the invention are preferably of a variety selected from Maris Piper, Beate

or Russet, especially Maris Piper. Especially preferably the potatoes are selected from varieties having a reducing sugar content of less than 1.5% wt, particularly less than 1.0% wt.

5 Besides being useful in the production of french-fried potatoes, the invention is also especially applicable in the production of potato crisps (also known in America as potato chips). In this regard, the acid and/or microorganism treatment is preferably
10 effected on the sliced potato prior to frying.

The invention is also applicable to grain, i.e. cereal, products, e.g. breads, biscuits (known in America as cookies), and in particular crisp breads. In this aspect of the invention, the treatment according to
15 the invention may be effected using lactic acid bacteria in the production of the dough and/or by acid treatment (e.g. treatment with sulphur dioxide or hydrogen chloride) of the flour.

Claims:

- 5 1. The use of a lactic acid producing microorganism for the treatment of a food material to reduce acrylamide production in subsequent cooking thereof.
- 10 2. The use of a physiologically acceptable acid for the treatment of a food material to reduce acrylamide production in subsequent cooking thereof.
- 15 3. A process for the preparation of ready to cook french fried potatoes which process comprises chopping potatoes, fermenting the chopped potatoes with a lactic acid producing microorganism, frying the fermented chopped potatoes, and optionally loading the fried fermented chopped potatoes into a container.
- 20 4. A process for the preparation of ready to cook french fried potatoes which process comprises chopping potatoes, treating the chopped potatoes with a physiologically acceptable acid, frying the acid treated potatoes, and optionally loading the fried potatoes into a container.
- 25 5. A container, preferably a sealed container, containing oven-ready french fried potatoes produced by frying chopped potatoes pre treated with a lactic acid producing microorganism and/or a physiologically acceptable acid.

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- BLACK BORDERS**
- IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- FADED TEXT OR DRAWING**
- BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- SKEWED/SLANTED IMAGES**
- COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- GRAY SCALE DOCUMENTS**
- LINES OR MARKS ON ORIGINAL DOCUMENT**
- REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.